a friction surface provided between the lower planar surface of the first blade spring and the upper planar surface of the second blade spring having a coefficient of friction selected to provide sliding resistance therebetween effective to damp vibrations of the tensioner, the coefficient of friction of the friction surface differing from a coefficient of friction of at least one of the lower planar surface of the first blade spring and the upper planar surface of the second blade spring.

18. A set of blade springs according to Claim 12 wherein the blade springs are combined with a blade shoe, the blade shoe comprising a chain sliding face against which the chain is slidable, wherein the blade springs are disposed between slots formed on a face of the blade shoe opposite the chain sliding face.

21. A method of applying tension to a chain with a blade tensioner, the method comprising:

providing a base having a sliding surface formed thereon;

pivotably attaching a first portion of a blade shoe to the base, the blade shoe having a chain sliding face and an opposing face opposite the chain sliding face, the blade shoe having a second portion slidable upon the base sliding surface;

biasing the blade shoe against the chain with at least two adjacent blade springs disposed on the opposing face of the blade shoe, the adjacent blade springs having contact surfaces slidable relative to each other;

damping vibrations of the tensioner with a friction surface provided between the contact surfaces of the adjacent blade springs providing a coefficient of friction therebetween greater than the coefficient of friction of the blade spring contact surfaces.

REMARKS

Claims 1-26 stand rejected under 35 U.S.C. 112, second paragraph. Claims 1, 7-12, 18, and 21 have been amended to clarify the language of claims 1, 12, 18 and 21 and to provide an antecedent basis for claims 7-11.

Claims 1, 12, 13, 21 and 22 stand rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,055,088 to Cradduck et al. Applicant respectfully submits that claims 1, 12, 13, 21 and 22 as presently recited are not anticipated by Cradduck et al.

Cradduck does not disclose or suggest a friction surface provided between surfaces of adjacent blade springs, nor does it disclose or suggest the selection of a friction surface with a coefficient of friction larger than the coefficient of friction of the opposing surfaces of the adjacent blade springs and effective to damp vibrations of the tensioner.

Claims 12 and 13 stand rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 1,443,545 to Lord. Applicant respectfully submits that claims 12 and 13 as presently recited are not anticipated by Lord, and in fact Lord teaches away from the claimed invention.

Lord does not disclose a set of spring blades for urging a blade shoe of a tensioner against a chain to apply tension to the chain. Indeed, there is no mention of using the leaf springs of Lord in a tensioner, or that such springs are or could be adapted for use in a tensioner of the invention. Moreover, the rubber layers in Lord function differently than the friction surface of the invention. The rubber layers of Lord are disposed "to take up the relative endwise movement of the leaves by the stretching of the rubber." There is no suggestion in Lord that its rubber layers provide or could provide frictional damping between blades in the blade tensioner of the invention. (*See* Col. 1, ll. 18-17). To the contrary, the only mention of frictional engagement in Lord is that used to adhere Lord's rubber to its leaf spring leaves to prevent slippage and wear to the rubber. (Col. 1, ll. 27-28).

Claims 2, 3, 7-9, 14, 15, 23, and 24 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Cradduck in view of Lord. Applicant respectfully submits that claims 2, 3, 7-9, 14, 15, 23, and 24 as presently recited are not obvious from Cradduck or Lord, separately or taken together.

As the Office Action recognizes, Cradduck does not disclose the friction surface being a plate-like member extending in the length direction of the blade springs as

recited in claims 2, 3, 8, and 9, or a plate member as recited in claims 14, 15, 23, and 24. As discussed above, Cradduck does not disclose or suggest a friction surface disposed between the blades, and Lord simply does not apply to the present invention (and in fact teaches away from it). Given the significant differences between the teachings of Lord and Cradduck, there is no motivation or incentive provided for their combination that they would have rendered the claimed invention obvious to one skilled in the art.

Claims 4-6, 10, 11, 16, 17, 25 and 26 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Cradduck in view of U.S. Patent No. 5,691,037 to McCutcheon et al. Applicant respectfully submits that claims 4-6, 10, 11, 16, 17, 25 and 26 as presently recited are not obvious from Cradduck or McCutcheon taken alone or together. As discussed above, Cradduck does not disclose or suggest claimed invention. The laminate of McCutcheon is directed to an entirely different environment, application and purpose of than the claimed tensioner. The McCutcheon structure is intended for computer disk drives and other planar surfaces, not for tensioners such as the claimed invention.

Moreover, the McCutcheon structure relies on a laminate including a viscoelastic material which is suitable to absorb or inhibit vibrations in McCutcheon's intended applications. There is no suggestion in McCutcheon of a blade spring structure of the claimed invention, or the use of a friction layer between blades of such a tensioner to provide damping.

Given the significant differences between the teachings of McCutcheon and Cradduck, there is no motivation provided for their combination or any suggestion that such a combination would be operable or beneficial.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The page is captioned "VERSION WITH MARKINGS TO SHOW CHANGES MADE."

Applicant respectfully submits that the application is in condition for allowance. The Commissioner is hereby authorized to charge any additional fees which may be required in this application to Deposit Account No. 06-1135.

Respectfully submitted,
FITCH, EVEN, TABIN & FLANNERY

By: _____
Jon A. Birmingham
Registration No. 51,222

Date: January 30, 2003
FITCH, EVEN, TABIN & FLANNERY
120 S. LaSalle St., Suite 1600
Chicago, Illinois 60603
Telephone: (312) 577-7000
Facsimile: (312) 577-7007

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Upon entry of the present amendment, claims 1, 7-12, 18, and 21 have been amended as indicated:

1. A blade tensioner for applying tension to a chain, the blade tensioner comprising:

a blade shoe having a first face and an opposing second face, the first face having a chain sliding surface on which the chain is slidable;

at least two adjacent blade springs disposed on the second face of the blade shoe for applying a spring force to the blade shoe, the adjacent blade springs having opposing surfaces [contacting in sliding engagement] slidable relative to each other; and

a friction surface provided between the [contact] opposing surfaces of the adjacent blade springs, the friction surface having a coefficient of friction larger than the coefficient of friction of the surfaces of the adjacent blade springs and selected to provide sliding resistance therebetween effective to damp vibrations of the tensioner.

7. A blade tensioner in accordance with Claim 1, wherein the friction [parts are] surface is configured using rubber, plastic, or friction paper.

8. A blade tensioner in accordance with Claim 2, wherein the [friction parts are] plate-like member is configured using rubber, plastic, or friction paper.

9. A blade tensioner in accordance with Claim 3, wherein the [friction parts are] plate-like member is configured using rubber, plastic, or friction paper.

10. A blade tensioner in accordance with Claim 4, wherein the [friction parts] members are configured using rubber, plastic, or friction paper.

11. A blade tensioner in accordance with Claim 5, wherein the [friction parts] bumpy surfaces are configured using rubber, plastic, or friction paper.

12. A set of spring blades for urging a blade shoe of a tensioner against a chain to apply tension to the chain, the set of spring blades comprising:

a first blade spring having an upper and a lower planar surface;

a second blade spring having an upper and a lower planar surface disposed below the first blade spring, the lower planar surface of the first blade spring and the upper planar surface of the second blade spring slidable relative to each other [in sliding engagement]; and

a friction surface provided between the lower planar surface of the first blade spring and the upper planar surface of the second blade spring having a coefficient of friction selected to provide sliding resistance therebetween effective to damp vibrations of the tensioner, the coefficient of friction of the friction surface differing from a coefficient of friction of at least one of the lower planar surface of the first blade spring and the upper planar surface of the second blade spring.

18. A set of blade springs according to Claim 12 wherein the blade springs are combined with a blade shoe, the blade shoe [comprises] comprising a chain sliding face against which the chain is slidable, wherein the blade springs are disposed between slots formed on a face of the blade shoe opposite the chain sliding face.

21. A method of applying tension to a chain with a blade tensioner, the method comprising:

providing a base having a sliding surface formed thereon;

pivotally attaching a first portion of a blade shoe to the base, the blade shoe having a chain sliding face and an opposing face opposite the chain sliding face, the blade shoe having a second portion slidable upon the base sliding surface;

biasing the blade shoe against the chain with at least two adjacent blade springs disposed on the opposing face of the blade shoe, the adjacent blade springs having contact surfaces [in sliding engagement] slidable relative to each other;

damping vibrations of the tensioner with a friction surface provided between the contact surfaces of the adjacent blade springs providing a coefficient of friction therebetween greater than the coefficient of friction of the blade spring contact surfaces.